In the claims:

CLAIMS 1 – 13 (Cancel)

CLAIM 14 (Previously Presented) A method of forming a spatial light modulator array comprising the steps of:

forming a plurality of electrical circuits in a semiconductor substrate positioned for interconnecting with subsequently formed liquid crystal devices, respectively,

forming one or more layers of interconnections above said plurality of electrical circuits,

forming a first dielectric layer over said electrical circuits and said layers of interconnections,

planarizing said first dielectric layer to provide a substantially planar upper surface on said first dielectric layer,

forming a reflector/absorber layer of conductive material, positioned and patterned with respect to subsequently formed liquid crystal devices for shielding said plurality of electrical circuits from ambient light,

forming a second dielectric layer above said patterned reflector/absorber layer,

forming studs through said second dielectric layer for electrical connection to subsequently formed mirrors,

forming a plurality of mirrors over said dielectric layer and patterned to form the lower electrode of said plurality of liquid crystal devices, said mirrors overlapping said reflector/absorber layer to form a capacitor with respect to said mirrors and to attenuate light traveling between said reflect/absorber and said mirrors,

forming a plurality of spacers positioned in between selected mirrors of said plurality of mirrors,

applying a layer of liquid crystal material,

orienting said layer of liquid crystal material, and

forming a top electrode of said plurality of mirrors to form said plurality of liquid crystal devices.

CLAIMS 15-63 (Canceled).

CLAIM 64 (Previously Presented) A method of forming a spatial light modulator array comprising the steps of:

forming a plurality of electrical circuits in a semiconductor substrate positioned for interconnecting with subsequently formed liquid crystal devices, respectfully;

forming one or more layers of interconnections above said plurality of electrical circuits;

forming a first dielectric layer over said electrical circuits and said layers of interconnections;

planarizing said first dielectric layer to provide a substantially planar upper surface on said first dielectric layer;

forming an absorber layer, positioned and patterned with respect to subsequently formed liquid crystal devices for shielding said plurality of electrical circuits from ambient light,

forming a second dielectric layer above said patterned absorber layer;

forming studs through said second dielectric layer for electrical connection to subsequently formed mirrors;

forming a plurality of mirrors over said dielectric layer and patterned to form the lower electrode of said plurality of liquid crystal devices, said mirrors overlapping said absorber layer to form a capacitor with respect to said overlapping mirror and to attenuate light traveling between said absorber and said mirror;

forming plurality of spacers positioned in between selected mirrors of said plurality of mirrors;

applying a layer of liquid crystal material;

orienting said layer of liquid crystal material;

forming a top electrode of said plurality of mirrors to form said plurality of liquid crystal devices; and

said absorber layer comprises an anti-reflection coating.

CLAIM 65 (Previously Presented) A method of forming a spatial light modulator array comprising the steps of:

forming a plurality of electrical circuits in a semiconductor substrate positioned for interconnecting with subsequently formed liquid crystal devices, respectfully;

forming one or more layers of interconnections above said plurality of electrical circuits;

forming a first dielectric layer over said electrical circuits and said layers of interconnections;

planarizing said first dielectric layer to provide a substantially planar upper surface on said first dielectric layer;

forming an reflective layer, positioned and patterned with respect to subsequently formed liquid crystal devices for shielding said plurality of electrical circuits from ambient light;

forming a second dielectric layer above said patterned reflective layer;

forming studs through said second dielectric layer for electrical connection to subsequently formed mirrors;

forming a plurality of mirrors over said dielectric layer and patterned to form the lower electrode of said plurality of liquid crystal devices;

said mirrors overlapping said reflective layer to form a capacitor with respect to said overlapping mirror and to attenuate light traveling between said reflective and said mirror;

forming plurality of spacers positioned in between selected mirrors of said plurality of mirrors;

applying a layer of liquid crystal material;

orienting said layer of liquid crystal material;

forming a top electrode of said plurality of mirrors to form said plurality of liquid crystal devices; and

said mirrors are formed from a metal layer wherein said metal is selected from the group consisting of Ag, Al and alloys thereof.

CLAIMS 66 – 72 (Cancel)

CLAIM 73 (Currently Amended) A liquid crystal apparatus comprising:

a plurality of liquid crystal devices positioned on substrate,

a plurality of electrical circuits formed in said substrate coupled to said liquid crystal devices, respectively, for placing a voltage across electrodes of said liquid crystal devices;

a light blocking region positioned between said liquid crystal devices for shielding said plurality of electrical circuits from ambient light; and

said reflection electrodes are comprised primarily of Al and said shading layer is comprised primarily of a material selected from the group consisting of Ti ~~and~~, TiN and Ti $N_{0.33}$ $Co_{0.67}$.

CLAIMS 74 – 93

CLAIM 94 (Previously Presented) A method of forming a spatial light modulator array comprising the steps of:

forming a plurality of electrical circuits in a semiconductor substrate positioned for interconnecting with subsequently formed liquid crystal devices, respectfully;

forming one or more layers of interconnections above said plurality of electrical circuits;

forming a first dielectric layer over said electrical circuits and said layers of interconnections;

planarizing said first dielectric layer to provide a substantially planar upper surface on said first dielectric layer;

forming an absorber layer, positioned and patterned with respect to subsequently formed liquid crystal devices for shielding said plurality of electrical circuits from ambient light,

forming a second dielectric layer above said patterned absorber layer;

forming studs through said second dielectric layer for electrical connection to subsequently formed mirrors;

forming a plurality of mirrors over said dielectric layer and patterned to form the lower electrode of said plurality of liquid crystal devices, said mirrors overlapping said absorber layer to form a capacitor with respect to said overlapping mirror and to attenuate light traveling between said absorber and said mirror;

forming plurality of spacers positioned in between selected mirrors of said plurality of mirrors;

applying a layer of liquid crystal material;

orienting said layer of liquid crystal material;

forming a top electrode of said plurality of mirrors to form said plurality of liquid crystal devices; and

said absorber layer substantially prevents radiant energy incident on said non conductive optical blocking layer at a non-orthogonal angle from passing into said semiconductor substrate.

CLAIMS 95 – 102 (Cancel)

CLAIM 103 (Currently Amended) A liquid crystal apparatus comprising:

a plurality of liquid crystal devices positioned on substrate,

a plurality of electrical circuits formed in said substrate coupled to said liquid crystal devices, respectively, for placing a voltage across electrodes of said liquid crystal devices;

a light blocking region positioned between said liquid crystal devices for shielding said plurality of electrical circuits from ambient light;

said light blocking region substantially prevents radiant energy incident on said non conductive optical blocking layer at a non-orthogonal angle from passing into said semiconductor substrate; and

said reflection electrodes are comprised primarily of Al and said shading layer is comprised primarily of a material selected from the group consisting of Ti ~~and~~ , TiN and Ti $N_{0.33}$ $Co_{0.67}$.

CLAIMS 104 – 120 (Cancel)

CLAIM 121 (Previously Presented) A method of forming a spatial light modulator array comprising the steps of:

forming a plurality of electrical circuits in a semiconductor substrate positioned for interconnecting with subsequently formed liquid crystal devices, respectfully;
forming one or more layers of interconnections above said plurality of electrical circuits;

forming a first dielectric layer over said electrical circuits and said layers of interconnections;

planarizing said first dielectric layer to provide a substantially planar upper surface on said first dielectric layer;

forming an absorber layer, positioned and patterned with respect to subsequently formed liquid crystal devices for shielding said plurality of electrical circuits from ambient light,

forming a second dielectric layer above said patterned absorber layer;

forming studs through said second dielectric layer for electrical connection to subsequently formed mirrors;

forming a plurality of mirrors over said dielectric layer and patterned to form the lower electrode of said plurality of liquid crystal devices, said mirrors overlapping said absorber layer to form a capacitor with respect to said overlapping mirror and to attenuate light traveling between said absorber and said mirror;

forming plurality of spacers positioned in between selected mirrors of said plurality of mirrors;

applying a layer of liquid crystal material;

orienting said layer of liquid crystal material; and
forming a top electrode of said plurality of mirrors to form said plurality of liquid crystal devices.

CLAIM 122 – 160 (Cancel)

CLAIM 161. (Currently Amended). A spatial light modulator array for modulating light to form an image comprising: a plurality of liquid crystal devices positioned over respective mirrors on a dielectric layer on a semiconductor substrate, a plurality of electrical circuits formed in said semiconductor substrate coupled to said liquid crystal devices, respectively, for placing a voltage across its electrodes, and a reflector/absorber layer positioned and patterned with respect to said mirrors for shielding said plurality of electrical circuits from ~~ambient~~ light incident on said spatial light modulator, said reflector/absorber layer having an edge overlapping an edge of said mirror to form an overlapping region to decrease ~~ambient~~ said light incident on said spatial light modulator from passing into said semiconductor substrate, said reflector/absorber layer partially reflects and partially absorbs said ~~ambient~~ light incident ~~thereon~~ on said spatial light modulator, said reflector/absorber layer is not a black layer and has a reflectivity less than bulk aluminum.

CLAIM 162. (Previously Presented). A spatial light modulator array according to claim 161 wherein said reflector/absorber layer comprises a material selected from the group consisting of Ti, TiN and Ti $N_{0.33}$ $Co_{0.67}$.

CLAIM 163. (Previously Presented) A liquid crystal light valve comprising:

a semiconductor substrate having a region for a plurality of switching elements formed in a matrix form on a surface thereof;

a first metal layer formed on the surface of said semiconductor substrate through an insulating layer and divided into a plurality of parts by first slits;

a second metal layer formed on said first metal layer through another insulating layer and divided into a plurality of parts by second slits;

a third metal layer formed on said second metal layer through still another insulating layer and divided into a plurality of parts by third slits;

an opposite substrate having an opposite electrode on a surface thereof, disposed so as to be opposite to said third metal layer through an interval on said opposite electrode side; and

liquid crystal filling said interval between said opposite electrode and said third metal layer;

wherein said first slits, said second slits and said third slits are located so as to be displaced from each other in a direction parallel to said surface of said semiconductor substrate so as to prevent light projected from said opposite substrate side thereto to reach said semiconductor substrate;

at least one of said first metal layer, said second metal layer and said third metal layer has disposed in contact therewith a reflector/absorber layer which partially reflects and partially absorbs light incident thereon, said reflector/absorber layer is not a black layer and said reflector/absorber layer and has a reflectivity less than bulk aluminum.

CLAIM 164. (Previously Presented). A spatial light modulator array according to claim 161 wherein said reflector/absorber layer comprises a material selected from the group consisting of Ti, TiN and Ti $N_{0.33}$ $Co_{0.67}$.

CLAIM165. (New). A spatial light modulator array for modulating light to form an image comprising: a plurality of liquid crystal devices positioned over respective mirrors on a dielectric layer on a semiconductor substrate, a plurality of electrical circuits formed in said semiconductor substrate coupled to said liquid crystal devices, respectively, for placing a voltage across its electrodes, and a reflector/absorber layer positioned and patterned with respect to said mirrors for shielding said plurality of electrical circuits from light incident on said spatial light modulator, said reflector/absorber layer having an edge overlapping an edge of said mirror to form an overlapping region to decrease said light incident on said spatial light modulator from passing into said semiconductor substrate, said reflector/absorber layer partially reflects and partially absorbs said light incident on said spatial light modulator, said reflector/absorber layer is not a black layer and said reflector/absorber layer is disposed between a dielectric layer and an electrically conductive layer, said reflector/absorber layer has a different chemical composition than said dielectric layer and said electrically conductive layer.

CLAIM 166. (New). A spatial light modulator array according to claim 165 wherein said reflector/absorber layer comprises a material selected from the group consisting of Ti, TiN and Ti $N_{0.33}$ $Co_{0.67}$.

CLAIM 167. (New) A liquid crystal light valve comprising:

a semiconductor substrate having a region for a plurality of switching elements formed in a matrix form on a surface thereof;

a first metal layer formed on the surface of said semiconductor substrate through an insulating layer and divided into a plurality of parts by first slits;

a second metal layer formed on said first metal layer through another insulating layer and divided into a plurality of parts by second slits;

a third metal layer formed on said second metal layer through still another insulating layer and divided into a plurality of parts by third slits;

an opposite substrate having an opposite electrode on a surface thereof, disposed so as to be opposite to said third metal layer through an interval on said opposite electrode side; and

liquid crystal filling said interval between said opposite electrode and said third metal layer;

wherein said first slits, said second slits and said third slits are located so as to be displaced from each other in a direction parallel to said surface of said semiconductor substrate so as to prevent light projected from said opposite substrate side thereto to reach said semiconductor substrate;

at least one of said first metal layer, said second metal layer and said third metal layer has disposed in contact therewith a reflector/absorber layer which partially reflects and partially absorbs light incident thereon, said reflector/absorber layer is not a black layer and said reflector/absorber layer has a different chemical composition than said dielectric layer, said another dielectric layer and said still another dielectric layer to

which it is disposed in contact, and said reflector/absorber layer has a different chemical composition than said at least one of said first metal layer, said second metal layer and said third metal layer to which it is disposed in contact.

CLAIM 168. (New) A spatial light modulator array according to claim 167 wherein said reflector/absorber layer comprises a material selected from the group consisting of Ti, TiN and Ti $N_{0.33}$ $Co_{0.67}$.

CLAIM169. (New) A spatial light modulator array for modulating light to form an image comprising: a plurality of liquid crystal devices positioned over respective mirrors on a dielectric layer on a semiconductor substrate, a plurality of electrical circuits formed in said semiconductor substrate coupled to said liquid crystal devices, respectively, for placing a voltage across its electrodes, and a reflector/absorber layer positioned and patterned with respect to said mirrors for shielding said plurality of electrical circuits from light incident on said spatial light modulator, said reflector/absorber layer having an edge overlapping an edge of said mirror to form an overlapping region to decrease said light from passing into said semiconductor substrate, said reflector/absorber layer partially reflects and partially absorbs said light incident on said spatial light modulator, said reflector/absorber layer is not a black layer and said shielding of said reflector/absorber layer attenuates said light incident on said spatial light modulator by a factor of at least about 100,000 before passing into said semiconductor substrate.

CLAIM 170. (New) A spatial light modulator array according to claim 169 wherein said reflector/absorber layer comprises a material selected from the group consisting of Ti, TiN and Ti $N_{0.33}$ $Co_{0.67}$.

CLAIM 171. (New) A liquid crystal light valve comprising:

a semiconductor substrate having a region for a plurality of switching elements formed in a matrix form on a surface thereof;

a first metal layer formed on the surface of said semiconductor substrate through an insulating layer and divided into a plurality of parts by first slits;

a second metal layer formed on said first metal layer through another insulating layer and divided into a plurality of parts by second slits;

a third metal layer formed on said second metal layer through still another insulating layer and divided into a plurality of parts by third slits;

an opposite substrate having an opposite electrode on a surface thereof, disposed so as to be opposite to said third metal layer through an interval on said opposite electrode side; and

liquid crystal filling said interval between said opposite electrode and said third metal layer;

wherein said first slits, said second slits and said third slits are located so as to be displaced from each other in a direction parallel to said surface of said semiconductor substrate so as to prevent light projected from said opposite substrate side thereto to reach said semiconductor substrate;

at least one of said first metal layer, said second metal layer and said third metal layer has disposed in contact therewith a reflector/absorber layer which partially reflects and partially absorbs light incident thereon, said reflector/absorber layer is not a black layer and wherein said reflector/absorber layer in combination with said first slits, said second slits and said third slits being located so as to be displaced from each other in a

direction parallel to said surface of said semiconductor substrate so as to prevent light projected from said opposite substrate side thereto to reach said semiconductor substrate attenuates said light by a factor of at least about 100,000 before passing into said semiconductor substrate.

CLAIM 172. (New) A spatial light modulator array according to claim 171 wherein said reflector/absorber layer comprises a material selected from the group consisting of Ti, TiN and Ti $N_{0.33}$ $Co_{0.67}$.

CLAIM173. (New) A spatial light modulator array for modulating light to form an image comprising: a plurality of liquid crystal devices positioned over respective mirrors on a dielectric layer on a semiconductor substrate, a plurality of electrical circuits formed in said semiconductor substrate coupled to said liquid crystal devices, respectively, for placing a voltage across its electrodes, and a reflector/absorber layer positioned and patterned with respect to said mirrors for shielding said plurality of electrical circuits from light incident on said spatial light modulator, said reflector/absorber layer having an edge overlapping an edge of said mirror to form an overlapping region to decrease said light from passing into said semiconductor substrate, said reflector/absorber layer partially reflects and partially absorbs said light incident on said spatial light modulator, said reflector/absorber layer comprises a first layer comprising aluminum, at least one surface of said first layer has a first surface having a first layer disposed in contact therewith comprising titanium.

CLAIM 174. (New) A spatial light modulator array according to claim 173 where in said first layer has a second surface opposite to said first surface, said second surface has a second layer disposed in contact therewith comprising titanium.

CLAIM 175. (New) A liquid crystal light valve comprising:

a semiconductor substrate having a region for a plurality of switching elements formed in a matrix form on a surface thereof;

a first metal layer formed on the surface of said semiconductor substrate through an insulating layer and divided into a plurality of parts by first slits;

a second metal layer formed on said first metal layer through another insulating layer and divided into a plurality of parts by second slits;

a third metal layer formed on said second metal layer through still another insulating layer and divided into a plurality of parts by third slits;

an opposite substrate having an opposite electrode on a surface thereof, disposed so as to be opposite to said third metal layer through an interval on said opposite electrode side; and

liquid crystal filling said interval between said opposite electrode and said third metal layer;

wherein said first slits, said second slits and said third slits are located so as to be displaced from each other in a direction parallel to said surface of said semiconductor substrate so as to prevent light projected from said opposite substrate side thereto to reach said semiconductor substrate;

at least one of said first metal layer, said second metal layer and said third metal layer has a first surface disposed in contact with a first reflector/absorber layer which partially reflects and partially absorbs light incident thereon, said reflector/absorber layer comprises titanium.

CLAIM 176. (New) A spatial light modulator array according to claim 174 wherein said at least one of said first metal layer, said second metal layer and said third metal layer, which has disposed in contact therewith said first reflector/absorber layer, comprises aluminum.

CLAIM 177. (New) A spatial light modulator array according to claim 175 wherein said at least one of said first metal layer, said second metal layer and said third metal layer, which has a first surface disposed in contact with said first reflector/absorber layer, has a second surface opposite said first surface having a second reflector/absorber layer disposed in contact therewith comprising titanium.

CLAIM 178. (New) A spatial light modulator array according to claim 177 wherein said at least one of said first metal layer, said second metal layer and said third metal layer, which has a first surface and a second surface disposed in contact with said first and said second reflector/absorber layers, comprises aluminum.

CLAIM179. (New) A spatial light modulator array for modulating light to form an image comprising: a plurality of liquid crystal devices positioned over respective mirrors on a dielectric layer on a semiconductor substrate, a plurality of electrical circuits formed in said semiconductor substrate coupled to said liquid crystal devices, respectively, for placing a voltage across its electrodes, and a reflector/absorber structure positioned and patterned with respect to said mirrors for shielding said plurality of electrical circuits from light incident on said spatial light modulator, said reflector/absorber structure having an edge overlapping an edge of said mirror to form an overlapping region to decrease said light from passing into said semiconductor substrate, said reflector/absorber structure partially reflects and partially absorbs said light incident on said spatial light modulator, said reflector/absorber structure comprises a layer comprising aluminum, said layer comprising aluminum has a first surface and a second surface opposite said first surface, said first surface has disposed in contact therewith a first layer comprising titanium and said second surface has disposed in contact therewith a second layer comprising titanium .

CLAIM 180. (New) A liquid crystal light valve comprising:

a semiconductor substrate having a region for a plurality of switching elements formed in a matrix form on a surface thereof;

a first metal layer formed on the surface of said semiconductor substrate through an insulating layer and divided into a plurality of parts by first slits;

a second metal layer formed on said first metal layer through another insulating layer and divided into a plurality of parts by second slits;

a third metal layer formed on said second metal layer through still another insulating layer and divided into a plurality of parts by third slits;

an opposite substrate having an opposite electrode on a surface thereof, disposed so as to be opposite to said third metal layer through an interval on said opposite electrode side; and

liquid crystal filling said interval between said opposite electrode and said third metal layer;

wherein said first slits, said second slits and said third slits are located so as to be displaced from each other in a direction parallel to said surface of said semiconductor substrate so as to prevent light projected from said opposite substrate side thereto to reach said semiconductor substrate;

at least one of said first metal layer, said second metal layer and said third metal layer comprises a reflector/absorber structure which partially reflects and partially absorbs said light incident there, said least one of said first metal layer, said second metal layer and said third metal layer comprises aluminum and has a first surface and an opposite

second surface, said first surface has disposed in contact therewith a first layer comprising titanium, said second surface had disposed in contact with a layer comprising titanium.

CLAIM 181. (New) A liquid crystal light valve comprising:

a semiconductor substrate having a region for a plurality of switching elements formed in a matrix form on a surface thereof;

a first metal layer formed on the surface of said semiconductor substrate through an insulating layer and divided into a plurality of parts by first slits;

a second metal layer formed on said first metal layer through another insulating layer and divided into a plurality of parts by second slits;

a third metal layer formed on said second metal layer through still another insulating layer and divided into a plurality of parts by third slits;

an opposite substrate having an opposite electrode on a surface thereof, disposed so as to be opposite to said third metal layer through an interval on said opposite electrode side; and

liquid crystal filling said interval between said opposite electrode and said third metal layer;

wherein said first slits, said second slits and said third slits are located so as to be displaced from each other in a direction parallel to said surface of said semiconductor substrate so as to prevent light projected from said opposite substrate side thereto to reach said semiconductor substrate;

each of said first metal layer, said second metal layer and said third metal layer comprises a reflector/absorber structure which partially reflects and partially absorbs said light incident there, each of said first metal layer, said second metal layer and said third metal layer comprises aluminum and each has a first surface and an opposite second surface, said first surface has disposed in contact therewith a first layer comprising titanium, said second surface had disposed in contact with a layer comprising titanium.